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Introduction to the Wireless Networks minitrack

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1. Brief History

This minitrack was begun in 2005 as the minitrack on Wireless Sensor Networks. It was chaired by Edoardo Biagioni, Stephan Olariu of Old Dominion University (ODU), and Ashraf Wadaa also of ODU. As in this 12th edition, the very first minitrack had three papers.

There have been other minitrack chairs over the years, including Giuseppe Anastasi of the University of Pisa in Italy and Paulo Martins of Chaminade University in Honolulu. The current minitrack chairs have been active since 2011.

The name of the minitrack has changed as well, to “Wireless Sensor Networks and Applications" in 2008, to “Wireless Ad-Hoc and Sensor Networks” in 2009, and to the current title in 2012.

Authors of this minitrack have come from North America, Europe, Asia and South America. Although some only participate once, others come for several years in a row. The number of accepted papers in a year has varied between 3 and 9.

2. Wireless Networks

Even just a few years ago, most of us checked our email and browsed the web on a desktop or laptop computer. These days, most people live an always-connected life that relies heavily on wireless networks.

Unfortunately and unlike wired networks, wireless networks are not always available, offer variable and often unpredictable quality of service, and sometimes come at a substantial cost. Even the “always-connected” nature of wireless networks sometimes affects people's enjoyment of their lives.

This minitrack welcomes submissions on any aspect of wireless networks – technical, of course, but also social, economic, cultural, and others.

3. Papers in this minitrack

For this 50th anniversary edition of HICSS, this minitrack has three papers, two of which have been nominated for best-paper awards.

The first paper presents a simulator for ad-hoc networks among unmanned aircraft systems. Since reachability and interference in wirelss networks depend heavily on both distance and timing, testing such networks is expensive and hard to replicate exactly. This simulator, to quote from the abstract, merges a flight simulator with the existing network simulator OPNet, and provides the repeatability needed for the development of networking software.

The second paper presents work related to privacy in LTE, the wireless standard that currently provides high-speed cellular communications. This paper has identified weaknesses in the LTE standard that can be used to narrow down the caller’s location.

The third and final paper continues a series of submissions to this minitrack over the last few years, analyzing the design and performance of wireless networks used to charge tolls in the German highway toll system. This specific paper considers the consequence of temporary unavailability of the back-end processing system, and finds that under the right assumptions, delay-tolerant data such as toll information does not require high availability of back-end components.

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